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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/605,553	06/27/2000	David Black	E0295/7119 MBL	5747

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EXAMINER	
ABEL JALIL, NEVEEN	

ART UNIT	PAPER NUMBER
2175	

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/605,553	BLACK, DAVID	
	Examiner	Art Unit	
	Neveen Abel-Jalil	2175	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

SAM RIMELL
PRIMARY EXAMINER

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/16/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. The amendment filed on May 27, 2004 has been received and entered. Claims 1-32 are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Cabrera et al. (U.S. Patent No. 6,119,131).

As to claim 1, Cabrera et al. discloses a method of accessing one of a plurality o logical volumes stored on a plurality of storage systems in an enterprise (See column 5,

lines 9-63), the one of the plurality of logical volumes being stored on at least one of the storage systems (See abstract, wherein "the one of the plurality of logical" reads on "target logical volume" and wherein "being stored on at least one" reads on "device name"), the method comprising steps of:

specifying an enterprise logical volume identifier (ELVID) for the one of the plurality of the logical volumes that uniquely identifies the one of the plurality of logical volumes among the plurality of logical volumes, so that the ELVID can be used to access the one of the plurality of logical volumes on at least two of the plurality of storage systems (See column 7, lines 1-22, also see column 6, lines 38-67):

a specifying a physical storage address for the one of the plurality of logical volumes (See abstract, also see column 7, lines 51-65, wherein "physical storage address" reads on "drive letter" indicating a device associated with driver); and

verifying that the ELVID corresponds to the physical storage address (See column 8, lines 2-10, also see column 9, lines 34-58, wherein "physical storage address" reads on "device name" indicating a physical device attached).

As to claim 2, Cabrera et al. discloses comprising, a step of maintaining an ELVID database that includes ELVIDs and a corresponding physical storage location (See column 19, lines 35-67).

As to claim 3, Cabrera et al. discloses wherein the step of specifying an ELVID and the step of specifying a physical storage address are performed by a host computer accessing the logical volume (See column 20, lines 1-37).

As to claim 4, Cabrera et al. discloses wherein the step of verifying is performed by one of the storage systems (See column 17, lines 41-65, wherein "verifying" reads on "valid").

As to claim 5, Cabrera et al. discloses comprising a step of maintaining an ELVID database at each storage system, the respective ELVID database including ELVIDs stored at the respective storage system and a corresponding physical storage location (See column 14, lines 11-63).

As to claim 6, Cabrera et al. discloses wherein the step of verifying is performed by a storage management controller (See column 13, lines 35-60).

As to claim 7, Cabrera et al. discloses wherein the step of verifying is performed by one of the storage systems (See column 17, lines 41-65, wherein "verifying" reads on "valid").

As to claim 8, Cabrera et al. discloses wherein the one of the plurality of logical volumes is a conventional logical volume (See column 5, lines 42-52).

As to claim 9, Cabrera et al. discloses wherein the one of the plurality of logical volumes is a component of a conventional logical volume (See column 5, lines 42-52).

As to claim 10, Cabrera et al. does not teach wherein the one of the plurality of logical volumes is a hyper-volume (See column 6, lines 53-67).

As to claim 11, Cabrera et al. discloses wherein the one of the plurality of logical volumes is a striped volume (See column 15, lines 1-4).

As to claim 12, Cabrera et al. discloses wherein the one of the plurality of logical volumes is a partition (See column 15, lines 1-4).

As to claim 13, Cabrera et al. discloses comprising a step of assuring that the entity accessing the one of the plurality of logical volumes is authorized to do so (See column 6, lines 11-37).

As to claim 14, Cabrera et al. discloses further comprising a step of:

maintaining an ELVID database at each storage system (See column 13, lines 1-23, also see column 14, lines 23-37, wherein "database" reads on "data structure"), the respective ELVID database including ELVIDs and entities permitted to access the one of the plurality of logical volumes corresponding to the respective ELVID (See column 9, lines 6-28, also see column 13, lines 62-67).

As to claim 15, Cabrera et al. discloses a method of accessing one of a plurality o logical volumes stored on a plurality of storage system s in an enterprise (See column 5, lines 9-63), the one of the plurality of logical volumes being stored on at least one of the

storage systems (See abstract, wherein "the one of the plurality of logical" reads on "target logical volume" and wherein "being stored on at least one" reads on "device name"), the method comprising steps of:

specifying an enterprise logical volume identifier (ELVID) for the one of the plurality of logical volumes (See column 7, lines 1-22, also see column 6, lines 38-67);

specifying a physical storage address for the one of the plurality logical volumes (See abstract, also see column 7, lines 51-65, wherein "physical storage address" reads on "drive letter" indicating a device associated with driver, also see abstract, wherein "the one of the plurality of logical" reads on "target logical volume" and wherein "specifying a physical storage address" reads on "device name"); and

using the ELVID to assure that an entity requesting access to the one of the plurality of logical volumes is authorized to do so, the ELVID uniquely identifying the one of the plurality of logical volumes among the plurality if logical volumes and being usable to access the one of the plurality of logical volumes on at least two of the plurality of storage systems (See column 2, lines 10-59, also see column 7, lines 1-22, also see column 6, lines 38-67).

As to claim 16, Cabrera et al. discloses wherein the step of specifying an ELVID and the step of specifying a physical storage address are performed by a host computer accessing the logical volume (See abstract, also see column 7, lines 51-65, wherein "physical storage address" reads on "drive letter" indicating a device associated with driver).

As to claim 17, Cabrera et al. discloses wherein the step of using is performed by one of the storage system (See column 17, lines 41-65, wherein "verifying" reads on "valid").

As to claim 18, Cabrera et al. discloses wherein the step of using comprises a step of accessing an ELVID database (See column 13, lines 1-23, also see column 14, lines 23-37, wherein "database" reads on "data structure").

As to claim 19, Cabrera et al. discloses wherein the step of using is performed by a storage management controller (See column 20, lines 1-24).

As to claim 20, Cabrera et al. discloses wherein the step of using is performed by one of the storage system (See column 17, lines 41-65, wherein "verifying" reads on "valid").

As to claim 21, Cabrera et al. discloses further comprising a step of:

maintaining an ELVID database at each storage system (See column 13, lines 1-23, also see column 14, lines 23-37, wherein "database" reads on "data structure"), the respective ELVID database including ELVIDs and entities permitted to access the one of the plurality of logical volumes corresponding to the respective ELVID (See column 9, lines 6-28, also see column 13, lines 62-67).

As to claim 22, Cabrera et al. discloses wherein the step of using comprises a step of accessing an ELVID database (See column 13, lines 1-23, also see column 14, lines 23-37, wherein "database" reads on "data structure"), the ELVID database including ELVIDs and entities permitted to access the one of the plurality of logical volumes corresponding to the respective ELVID (See column 9, lines 6-28, also see column 13, lines 62-67).

As to claim 23, Cabrera et al. discloses wherein the entities are user accounts (See column 6, lines 11-28, wherein "user accounts" reads on "user's view" indicating different access or account according to the user).

As to claim 24, Cabrera et al. discloses wherein the entities are host computers (See column 7, lines 23-33).

As to claim 25, Cabrera et al. discloses wherein the entities are applications running on host computers (See column 6, lines 53-67, wherein "applications running on host computers" reads on "personal computer applications").

As to claim 26, Cabrera et al. discloses a host computer, comprising:

a processing unit (See column 7, lines 23-33, wherein "a processing unit" reads on "computer"); and

an enterprise logical volume identifier (ELVID) interface module to transmit an access request for at least one of a plurality of logical volumes, the access request

including an ELVID for the at least one of the plurality of logical volumes and a respective physical storage location on one of a plurality of storage systems, the ELVID unique identifying the one of the plurality of logical volumes among the plurality of logical volumes and being usable to access the one of the plurality of logical volumes on at least two of the plurality of storage systems (See column 7, lines 23-67, and see column 8, lines 1-10).

As to claim 27, Cabrera et al. discloses a storage system for use in an enterprise comprising a plurality of storage systems coupled by a network, the plurality of storage systems to store a plurality of logical volumes (See column 5, lines 9-63), the storage system comprising:

a storage medium to store data corresponding to the plurality of logical volumes (See column 5, lines 57-62), and

an enterprise logical volume identifier (ELVID) verifier module to verify that an access request to a physical storage location on the storage medium is directed to the a correct one of the plurality o logical volumes as identified by an ELVID, the ELVID uniquely identifying the correct one of the plurality of logical volumes among the plurality of logical volumes and being usable to access the correct one of the plurality of logical volumes on at least two of the plurality of storage systems (See column 2, lines 10-59, also see column 7, lines 1-22, also see column 6, lines 38-67).

As to claim 28, Cabrera et al. discloses comprising an ELVID database including ELVIDs for the plurality of logical volumes stored on the storage system and a

corresponding physical storage location (See abstract, also see column 7, lines 51-65, wherein "physical storage address" reads on "drive letter" indicating a device associated with driver).

As to claim 29, Cabrera et al. discloses a storage system for use in an enterprise comprising a plurality of storage systems coupled by a network, the plurality of storage systems to store a plurality of logical volumes (See column 5, lines 9-63), the storage system comprising:

a storage medium to store data corresponding to the plurality of logical volumes (See column 5, lines 57-62), and

an enterprise logical volume identifier (ELVID) authorization module to verify that an access request to a physical storage location on the storage medium is received from an entity permitted to access one of the plurality o logical volumes with a corresponding ELVID, the ELVID uniquely identifying the one of the plurality of logical volumes among the plurality of logical volumes and being usable to access the one of the plurality of logical volumes on at least two of the plurality of storage systems (See column 2, lines 10-59, also see column 7, lines 1-22, also see column 6, lines 38-67).

As to claim 30, Cabrera et al. discloses comprising a storage medium holding an ELVID database (See column 13, lines 1-23, also see column 14, lines 23-37, wherein "database" reads on "data structure"), the ELVID database including ELVIDs and entities permitted to access the one of the plurality of logical volumes corresponding to the respective ELVID (See column 9, lines 6-28, also see column 13, lines 62-67).

As to claim 31, Cabrera et al. discloses a computer system comprising:

at least one host computer (See column 7, lines 23-33);

a plurality of storage systems that store a plurality of logical volumes (See column 5, lines 57-62); and

means for associating enterprise logical volume identifiers (ELVIDs) with requests for access to the plurality of logical volumes (See column 5, lines 57-62, and see column 7, lines 1-17); and

means for verifying that access requests to physical storage locations are made to an appropriate one of the plurality o logical volumes identified by a respective ELVID, the ELVID uniquely identifying the appropriate one of the plurality of logical volumes among the plurality of logical volumes and being usable to access the appropriate one of the plurality o logical volumes on at least two of the plurality of storage systems (See column 2, lines 10-59, also see column 7, lines 1-22, also see column 6, lines 38-67).

As to claim 32, Cabrera et al. discloses a computer system comprising:

at least one host computer (See column 7, lines 23-33);

a plurality of storage systems hat store a plurality of logical volumes (See column 5, lines 57-62); and

means for verifying that access requests to the plurality of logical volumes using an associated enterprise logical volume identifier (ELVID) are made by an entity authorized to access the a requested one of the plurality of logical volumes, the ELVID uniquely identifying the requested one of the plurality of logical volumes among the

plurality of logical volumes and being usable to access the requested one of the plurality of logical volumes on at least two of the plurality of a storage systems (See column 2, lines 10-59, also see column 7, lines 1-22, also see column 6, lines 38-67).

Response to Arguments

4. Applicant's arguments filed on May 27, 2004 have been fully considered but they are not persuasive.

In response to applicant's argument that "Cabrera does not disclose or suggest that the unique volume identifier is unique with respect to other computers" is fully acknowledged but is not deemed to be persuasive.

The Examiner points to Cabrera column 7, lines 1-22, wherein the computer creates the logical volumes from physical removable or fixed media devices, each logical volume is identified by a unique volume identifier which is stored on the physical device or **devices.** Broadly interpreted by the examiner, "the at least two of the plurality of storage systems" is read on "devices". It can also be interpreted that the removable or fixed storage volumes attached to one computer constitutes more than one storage system. Furthermore, no where in the claim language does the recitation of "with respect to other computers" cited. Applicant argues that the unique volume identifier is unique within one computer only, not on enterprise basis level (ELVID) as claimed, the Examiner contends that a global unique identifier applies across logical volumes that can be stored on one device or on networked devices. "At least two of the plurality of storage

systems" as claimed can indeed reside on one device as well as connect to other devices, and one logical volume system can span two physical devices.

In response to applicant's argument on pages 11, and 12 that "Cabrera does not disclose or suggest verifying that the ELVID corresponds to the physical storage address" is fully acknowledged but is not deemed to be persuasive.

The Examiner points to Cabrera column 7, lines 18-58 wherein the unique identifier is associated with a drive name (drive is a physical object). Applicant argues that Cabrera does not disclose or suggest verifying that a mount name, which includes a GUID, corresponds to any physical storage address. The Examiner disagrees pointing to Cabrera column 11; lines 10-31, wherein the verifying step is inherit in the matching process. No matching can happen without verifying what needs to be accounted for. The Cabrera art goes further and creates a unique identifier if no match if found for a new entry.

In response to applicant's argument that "Cabrera does not disclose performing a verification step that compares mount names to logical volume identifiers to ensure that the correct data is being accessed" is fully acknowledged but is not deemed to be persuasive.

The Examiner points to column 8, lines 40-47, wherein Cabrera discloses error prevention. No where in the claims, does the Examiner find the recitation of "compares mount names to logical volume identifiers", however, the Examiner still contends that Cabrera teaches the concept of "the correct data is being accessed" in column 8, lines 48-

67, and column 9, lines 1-5 wherein the global namespace can be carried to another computer.

In response to applicant's argument that "Cabrera does not disclose using the ELVID to assure that an entity requesting access to the one of the plurality of logical volumes is authorized to do so" is fully acknowledged but is not deemed to be persuasive.

The Examiner points to Cabrera column 5, lines 57-66, wherein "is authorized to do so" reads on "appropriate" indicating that a verification and matching occurs automatically within the system thereby authorizing the proper mount. Applicant requested a clarification as to why the cited portions of the art are relevant to the limitation above. The Examiner once again contends that the cited portions of Cabrera column 7, lines 1-50 in particular teaches that only authorized logical volumes that match the unique identifier can be used to mount the request. Column 6, lines 38-67 was cited to teach that "authorization" is user defined and can be allocated to some or all devices attached to the system.

In response to applicant's argument that "Cabrera does not disclose or suggest an ELVID interface module to transmit an access request for at least one of a plurality of logical volumes and a respective physical storage location on one of a plurality of storage systems" is fully acknowledged but is not deemed to be persuasive.

The Examiner points to Cabrera column 15, lines 22-26 wherein "interface" is disclosed. Once data is mounted it keeps checking the volume for space and capacity

therefore it is continuously verifying. Also see Cabrera column 16, lines 27-52 for using the ELVID interface for mounting data.

In response to applicant's argument on pages 15, 16, and 17 that "Cabrera does fails to disclose or suggest an enterprise logical volume identifier (ELVID) verifier module to verify that an access request to a physical storage location on the storage medium is directed to a correct one of the plurality of logical volumes as identified by ELVID" is fully acknowledged but is not deemed to be persuasive.

The Examiner also points out that all storage systems logical volume identifiers are assigned to a particular physical location and mapped as such in the access directory. Its is well known and accepted in the art, therefore, verifying or matching the volume id's is well known in order to perform the storage process.

In response to applicant's argument on page 16 that "Cabrera does fails to disclose or suggest an enterprise logical volume identifier (ELVID) authorization module to verify that an access request to a physical storage location on the storage medium is received from an entity permitted to access one of the plurality of logical volumes with corresponding ELVID" is fully acknowledged but is not deemed to be persuasive.

The Examiner points to Cabrera column 5, lines 57-66, wherein "is authorized to do so" reads on "appropriate" indicating that a verification and matching occurs automatically within the system thereby authorizing the proper mount. Applicant requested a clarification as to why the cited portions of the art are relevant to the limitation above. The Examiner once again contends that the cited portions of Cabrera

column 7, lines 1-50 in particular teaches that only authorized logical volumes that match the unique identifier can be used to mount the request. Column 6, lines 38-67 was cited to teach that "authorization" is user defined and can be allocated to some or all devices attached to the system. The same response as above.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Neveen Abel-Jalil whose telephone number is 703-305-8114. The examiner can normally be reached on 8:30AM-5: 30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici can be reached on 703-305-3830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Neveen Abel-Jalil
September 15, 2004

SAM RIMELL
PRIMARY EXAMINER